

**U.S. DEPARTMENT OF ENERGY
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
OFFICE OF QUALITY ASSURANCE**

AUDIT REPORT

OF

**CIVILIAN RADIOACTIVE WASTE MANAGEMENT SYSTEM
MANAGEMENT AND OPERATING CONTRACTOR**

AT

LAS VEGAS, NEVADA, THE YUCCA MOUNTAIN SITE

AND

VIENNA, VIRGINIA

AUDIT NUMBER M&O-ARC-99-03

JANUARY 25 THROUGH FEBRUARY 5, 1999

Prepared by: _____ Date: _____

**Edward P. Opelski
Audit Team Leader
Office of Quality Assurance**

Approved by: _____ Date: _____

**Robert W. Clark
Acting Director
Office of Quality Assurance**

1.0 EXECUTIVE SUMMARY

As a result of Quality Assurance (QA) Audit M&O-ARC-99-03, the audit team determined that, with the exception of those areas where deficiencies existed, the Civilian Radioactive Waste Management System Management and Operating Contractor (CRWMS M&O) is satisfactorily and effectively implementing examined portions of the QA Program described in the U.S. Department of Energy (DOE) Office of Civilian Waste Management (OCRWM) Quality Assurance Requirements and Description (QARD), DOE/RW-0333P, Revision 8, and implementing procedures. Implementation of QA Program Elements 1.0, 5.0, 6.0, 12.0, 13.0, 15.0, 17.0, Supplement II, and Appendix C was satisfactory. Implementation of QA Program Elements 2.0, 4.0, 7.0, 16.0, and Supplements I, III and V was found to be unsatisfactory.

The audit team identified a total of 16 conditions adverse to quality during the audit. Three of these conditions resulted in the issuance of three new OCRWM Deficiency Reports (DR). Details of these DRs are documented in Section 5.5.2 of the report. The corrective actions related to seven of these conditions are addressed in the responses to six previously issued OCRWM deficiency documents identified in Section 5.5.5 of the report. There were six deficient conditions identified that required only remedial action that were corrected prior to the post-audit meeting. Details of these Corrected During the Audit (CDA) conditions are documented in Section 5.5.4 of the report. Additionally, there were six recommendations resulting from the audit, which are documented in Section 6.0 of the report.

The audit team determined that implementation of the following QA Program Elements was particularly effective: 12.0, *Control of Measuring and Test Equipment*; 13.0, *Handling, Storage, and Shipping*, which was reviewed as part of Supplement II; 15.0, *Nonconformances*; and Supplement II, *Sample Control*. CRWMS M&O personnel contacted during the audit were courteous and forthright in responding to the auditor's inquiries and are to be commended for their efforts in completing the remedial actions necessary to close the six CDA deficiencies described in Section 5.5.4 of this report.

2.0 SCOPE

This limited-scope compliance-based audit was conducted to evaluate the adequacy of, compliance to, and the effectiveness of the CRWMS M&O in implementing the QA Program described in the QARD and the CRWMS M&O implementing procedures. Prior to the audit, the Office of Quality Assurance (OQA) performed a review of the CRWMS M&O work activities at various locations. Based on that review, OQA determined that the audit would be conducted at the CRWMS M&O offices at Las Vegas, Nevada; the Yucca Mountain Site; and Vienna, Virginia. Other locations and activities subject to QA program requirements will be included during the performance of an audit of Design Control and an additional audit of those activities transitioned to the CRWMS M&O from Kiewit/Parsons Brinckerhoff (Kiewit/PB). These additional audits are currently scheduled to be conducted later in Fiscal Year 1999.

The following QA Program Elements/Requirements were evaluated during the audit, in accordance with the approved audit plan:

QA PROGRAM ELEMENTS/REQUIREMENTS

1.0	Organization
2.0	Quality Assurance Program
4.0	Procurement Document Control
5.0	Implementing Documents
6.0	Document Control
7.0	Control of Purchased Items and Services
12.0	Control of Measuring and Test Equipment
13.0	Handling, Storage, and Shipping (Contained in Supplement II)
15.0	Nonconformances
16.0	Corrective Action
17.0	Quality Assurance Records
Supplement I	Software
Supplement II	Sample Control
Supplement III	Scientific Investigation
Supplement V	Control of the Electronic Management of Data
Appendix C	Mined Geologic Disposal System (MGDS)

The following QA Program Elements/Requirements were not reviewed during the audit because they were found to be not applicable, since the CRWMS M&O currently has no activities to which these elements apply, or they will be reviewed at a later date during the audit of Design Control or the audit of the activities transitioned to the CRWMS M&O from Kiewit/PB.

3.0	Design Control
8.0	Identification and Control of Items
9.0	Control of Special Processes
10.0	Inspection
11.0	Test Control
14.0	Inspection, Test and Operating Status
18.0	Audits
Supplement IV	Field Surveying
Appendix A	High-Level Waste Form Production
Appendix B	Storage and Transportation

3.0 AUDIT TEAM AND OBSERVERS

The following is a list of audit team members and their assigned areas of responsibility:

<u>Name/Title/Organization</u>	<u>QA Program Elements/Requirements</u>
Edward P. Opelski, ATL, OQA	1.0 Las Vegas (LV) and Vienna (V), 4.0, 7.0 (V)
Robert P. Hasson, Auditor, OQA	2.0, 17.0 (LV), 2.0, 16.0, Supplements I and V (V)
Richard G. Peck, Auditor, OQA	2.0, 4.0, 7.0, and Appendix C (LV)
Victor J. Barish, Auditor, OQA	12.0, 13.0, 15.0, 16.0, Supplements II and III (LV)
Michael A. Goyda, Auditor, OQA	2.0, Supplements III and V (LV)
Kenneth T. McFall, Auditor, OQA	2.0 and Supplement III (LV)
Charles T. Taylor, Auditor, OQA	12.0, 13.0, 15.0, Supplements II and III (LV)
Donald J. Harris, Auditor, OQA	5.0, 6.0, and 17.0 (LV)
Kristi A. Hodges, Auditor, OQA	5.0, 6.0, and 17.0 (LV)
Robert F. Hartstern, Auditor, OQA	5.0, 6.0, and 17.0 (V), Supplement I (LV)
Stephen D. Harris, Auditor, OQA	Supplement I (LV)

Art Mena, a Quality Assurance Specialist employed by Lockheed Martin Idaho Technologies Company, working in the National Spent Nuclear Fuel Program, was an Observer during this audit.

4.0 AUDIT MEETINGS AND PERSONNEL CONTACTED

A pre-audit meeting was held at the CRWMS M&O offices in Las Vegas, Nevada, on January 25, 1999; and in Vienna, Virginia, on February 2, 1999. Daily debriefing and coordination meetings were held with CRWMS M&O management and staff, and daily audit team meetings were held to discuss audit status. A preliminary post-audit meeting was held at Las Vegas, Nevada, on January 29, 1999; and at Vienna, Virginia, on February 5, 1998. The audit was concluded with a final post-audit meeting held at Las Vegas, Nevada, on February 9, 1999. CRWMS M&O personnel in the Vienna office attended the final post-audit meeting via video conferencing.

Personnel contacted during the audit, including those who attended pre-audit and post-audit meetings, are listed in Attachment I.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Effectiveness

The audit team concluded that, overall, with the exception of those Program Elements found unsatisfactory, the CRWMS M&O is adequately and effectively implementing the QA Program for the scope of this audit. The results for each Program Element evaluated are contained in Attachment 2, Summary Table of Audit Results.

5.2 Stop Work or Immediate Corrective Actions Taken

There were no stop work actions or immediate corrective actions taken as a result of this audit.

5.3 QA Program Audit Activities

A Summary Table of Audit Results is provided in Attachment 2. Details of the audit, including the objective evidence reviewed, are documented in the audit checklist. The checklist is maintained as a QA record.

5.4 Technical Audit Activities

There were no technical areas evaluated during this audit.

5.5 Summary of Deficiencies

The audit team identified a total of 16 conditions adverse to quality during the audit. Three of these conditions resulted in the issuance of three new OCRWM DRs. Details of these DRs are documented in Section 5.5.2 of the report. The corrective actions related to seven of these conditions are addressed in the responses to six previously issued OCRWM deficiency documents identified in Section 5.5.5 of the report. In addition, there were six deficient conditions identified that required only remedial action that were corrected prior to the post-audit meeting. Details of these CDA conditions are documented in Section 5.5.4 of the report.

5.5.1 Corrective Action Requests

None.

5.5.2 Deficiency Reports

VAMO-99-D-026

This DR was issued to document that the CRWMS M&O could not produce documentation indicating that one individual, out of a sample of four reviewed, had completed Read/Self Study Records for seven procedures and the Quality Review Board Charter (QRBC). Six of the seven procedures and the QRBC were required maintenance; however, QAP-5-1, *Preparation of M&O Quality Assurance Documents*, was not listed as required maintenance. This individual performs procedure reviews as part of his responsibilities as a member of the QRBC.

It should be noted that as part of the corrective action to previously issued DR VAMO-98-D-066, a memorandum was issued by the CRWMS M&O, President and General Manager, R. L. Strickler. This memorandum required the qualification and training status of all CRWMS M&O employees performing work subject to the QARD to be verified. It is apparent that the memorandum was not effective in preventing a recurrence of this deficiency.

LVMO-99-D-027

This DR was issued to document that CRWMS M&O managers and/or supervisors failed to ensure position descriptions provided the minimum education and experience requirements for Peer Review Panel and Expert Elicitation personnel. Additionally, verification of education and work experience forms for these personnel were not submitted to the Training Department for verification.

LVMO-99-D-030

This DR was issued to document that procedure QAP-SI-3, Revision 3, *Software Configuration Management*, does not describe a process for single user access to Software Configuration Management (SCM) controlled software. Consequently, the documentation of the process used by single users to obtain two codes, MING V1.0 and WITNESS V7.4, from SCM did not follow the multi-user process described in the procedure.

5.5.3 Performance Reports

None.

5.5.4 Deficiencies Corrected During the Audit

Deficiencies considered isolated in nature and only requiring remedial action can be corrected during the audit. The following deficiencies were identified and corrected during the audit:

1. The CRWMS M&O issued Performance Report (PR) VAMO-99-P-003 on January 26, 1999, to document that the Organizational Description Document (ODD) required by procedure QAP-1-0, *M&O Organization*, did not reflect the current CRWMS M&O organizational structure. The remedial actions listed on the PR were satisfactorily completed prior to the post-audit conference and resulted in Revision 4 to the ODD, dated February 4, 1999. This revision of the ODD adequately depicts the current CRWMS M&O organizational structure.
2. Procedure QAP-12-1, Revision 6, *Control of Measuring and Test Equipment and Calibration Standards*, subsection 5.3, requires that a procedure to calibrate equipment identify the calibration standards to be used. Calibration procedures NWI-MET-001Q, Revision 3, *Tests, Checks, and Performance Audits of Meteorological Equipment*, and NWI-SMF-005Q, Revision 2,

Control of Site Facilities Office Measuring and Test Equipment, did not identify the calibration standards to be used. The audit team determined that, when these procedures had been implemented, the correct calibration standards had been used for the calibration of equipment. Both procedures were revised to include identification of the appropriate calibration standards, and issued with effective dates prior to the post-audit conference.

3. A review of the procedures distributed to G. Ruffin, Copy Number 295, found that AP-6.1Q, Revision 0, *Distribution, Maintenance, and Use of Controlled Documents*, was in a manual containing CRWMS M&O QAPs. The latest revision of this procedure is Revision 1. Additionally, a note was attached to AP-17.1Q, *Record Source Responsibilities for Inclusionary Records*, to advise that ICN 1 had been issued and the controlled copy was located in the OCRWM QAP manual. The apparent reason for this discrepancy was that this individual was attempting to maintain APs in both the CRWMS M&O QAP manual and the OCRWM QAP manual with only one controlled copy of the APs being issued to her. Corrective action was taken during the audit by placing the current revision of controlled copies of APs in a separate manual and destroying all uncontrolled copies that had been placed in other manuals.
4. The Software Qualification Report (SQR) for the Verification and Validation of the MING V1.0 code was missing information required in Section 2d of Attachment II of procedure QAP-SI-0, Revision 4, "*Computer Software Qualification*". The missing information was assembled and the SQR was completed as required during the audit.
5. Procedure YAP-SII.4Q, Revision 2, *Collection, Submission, and Documentation of Non-Core and Non-Cuttings Samples to the Sample Management Facility for Site Characterization*, requires the client representative to maintain a Logger's log of field activities following the requirements of Attachment I. Items required to be entered in the log include the procedure, revision and ICN numbers used for logging, and documentation that shop calibrations performed by the vendor were completed within the past 30 days. The audit team determined that all of the required information was available in the in process record held by the Logger. In addition, the audit team determined that this was an isolated case and verified that all of the required information was entered in the Logger's log on January 29, 1999.

6. The audit team identified discrepancies concerning the use of Scientific Notebooks (SN). SN M&O-SCI-005-VI did not contain all of the requirements of procedure QAP-SIII-3, Revision 2, *Scientific Notebooks*, regarding the initial entry. This SN consists of a bound master notebook and three subtier, three ring binder notebooks. The subtier notebooks were mislabeled and one was not traceable to the master SN. These discrepancies were corrected during the audit by inserting a copy of the Work Plan that contained the information required for an initial entry in the SNs and by changing the labels on the subtier notebooks. SN DI:NEPO-TEST-01V0 did not reference another three ring binder that contained supporting information. This was corrected during the audit by adding a statement to the initial entry directing the reader to the three ring binder SN by title. The audit team is aware that the CRWMS M&O is currently conducting a review of all SNs. The SNs identified above, are on a schedule to be reviewed by the CRWMS M&O review team, but had not yet been reviewed.

5.5.5 Follow-up of Previously Identified Deficiency Documents

VAMO-98-C-005

This CAR issued to the CRWMS M&O on February 11, 1998, indicates that the CRWMS M&O failed to implement effective programs for the procurement of items and services, and for corrective action at each of the Affected Organizations. Corrective actions detailed in Revision 2 of the Management Plan and Response to this and other CARs, dated November 30, 1998, have not been completed.

The audit team determined that minimal progress has been achieved toward resolving the procurement and corrective action issues documented in this CAR. Namely, the centralization of the procurement process with the CRWMS M&O in Las Vegas, and the appointment of a Procurement Engineer.

Furthermore, the audit team identified the following examples of continuing procurement and corrective action deficiencies:

- During a review of documentation relative to the University of Nevada, Reno (UNR), Purchase Order (PO) AO8243BTPS, the audit team noted several anomalies found during a visit to UNR that have existed for a protracted period of time without correction. If left uncorrected, these anomalies could adversely affect effective implementation of QA program elements 2.0, 6.0, Supplements III and V.

- The audit team reviewed a Statement of Work (SOW) for implementation of an element of the CRWMS M&O Software Management Program for the physical control (change control) and life cycle management of software and associated software code data sets that are subject to the requirements of the QARD in a single centralized Software Management System (SMS) database for all M&O organizations. A QAP-2-0 Activity Evaluation for SMS implementation indicated that the activity was Q. The purchase requisition (PR) for this work indicated that the work was non-Q. PR A09324 was initiated on January 11, 1999, and approved by the responsible managers on January 19, 1999. The SOW attached to the PR stated that Sandia National Laboratories (SNL) personnel would perform the work. Upon receiving the PR and the attached SOW, the procurement organization informed the requisitioning organization that this work should be identified as Q, based upon the QAP-2-0 Activity Evaluation. This rejection was responded to with a Lotus Note, dated January 28, 1999, that provided an explanation that only raised more concern over the Q level of this work by referring to the QARD and LVMO-98-C-006. The procurement organization again rejected the PR. On January 29, 1999, the audit team learned that the actual work at SNL was already in process. Prior to the post-audit conference, the audit team was informed that a new QAP-2-0 Activity Evaluation had been completed for this specific work and that the work was determined to be non-Q.

Considering the examples presented above, it appears that the procurement organization is doing everything possible to comply with QA program requirements. However, implementation of the QA program requirements for procurement and corrective action within the line organizations remains unsatisfactory.

LVMO-98-C-006

This CAR issued to the CRWMS M&O on February 11, 1998, indicates that CRWMS M&O software programs were being developed and used for quality affecting activities without the implementation of specific software life cycle baseline and/or controls. In addition, not all of the CRWMS M&O software programs had been identified, baselines established, or placed under configuration management. Corrective actions detailed in Revision 2 of the Management Plan and Response to this CAR, dated November 30, 1998, have not been completed.

The audit team reviewed the Software Routine Report (SRR) for the SZ-CONVOLUTE V1.0 code. The individuals who performed the work and the independent qualification activities and testing were indicated on the

cover page. However, there was no clear indication of which tasks the individuals performed either in the text of the SRR or on the cover page. CAR LVMO-98-C-006 identified that the SZ-CONVOLUTE V1.0 code had not been qualified. Since the corrective actions required to resolve this CAR have not been completed, this area remains unsatisfactory. The status of the software code and the SRR will be evaluated during the verification activities associated with this CAR.

LVMO-99-C-001

This CAR issued to the CRWMS M&O on October 9, 1998, documents that based on a review of selected Technical Reports from Viability Assessment documents that: 1) some data referenced in the reports were not traceable to its origin; 2) data referenced could not always be traced to its qualification status; and 3) overall, identification and traceability of the data was not being maintained. In addition, the deficiencies identified suggest that rigor in the preparation and review of Technical Reports is ineffective.

The audit team estimated that progress toward completing the corrective actions necessary to resolve this CAR is at ten percent with a targeted completion date of December 30, 2000.

LVMO-98-D-027

This DR was issued to the CRWMS M&O on February 11, 1998, to document that planning was not performed in accordance with QARD requirements.

The only discernable progress noted by the audit team was that the Responsible Manager duties were transferred from L. Hayes, to J. K. Clark, Assistant General Manager, Operations, during the audit. The corrective action completion due date for this DR is February 27, 1999

LVMO-98-D-055

This DR was issued to the CRWMS M&O on March 26, 1998, to document that the CRWMS M&O has not delineated measures to identify and describe activities that result in determining controls for the electronic management of data. In addition, the administration of the Site and Engineering Properties database was being conducted without an approved procedure in place.

The CRWMS M&O response to this DR committed to completing a list of planned corrective actions to resolve the deficiencies. The list of planned corrective actions contains scheduled dates for completion. The audit

team determined that the scheduled date for completing the first item on the list, issuance of procedure YAP-SV.1Q, *Control of the Electronic Management of Data*, was nearly one month overdue.

VAMO-98-D-132

This DR was issued to the CRWMS M&O on October 14, 1998, to document that numerous data points contained in the Fuel Assemblies Database were determined to be inaccurate.

As part of the response to this DR, the CRWMS M&O identified that a program wide procedure needs to be developed to implement QARD Supplement V requirements. The resolution of this deficiency requires coordination with LVMO-98-D-055, which is to result in the issuance of procedure YAP-SV.1Q. It should be noted that although the Vienna office has committed to working to the YAP on an interim basis, consideration should be given to convert the YAP to an AP.

6.0 RECOMMENDATIONS

The following recommendations resulted from the audit and are presented for consideration by CRWMS M&O management:

1. The audit team recommends that the plan for the TSPA-VA Peer Review be modified to provide justification for why certain review criteria was selected versus that which was omitted. It is further recommended to revise procedure QAP-3-3, *Peer Review*, to clearly direct that justification be documented relative to selection of the review criteria.
2. The audit team recommends that the CRWMS M&O determine the necessity of renumbering previously qualified software that does not meet the numbering system described in the current procedure, (e.g., ORIGEN-ARP-V1.0 does not meet the current numbering system described in QAP-SI-3, *Software Configuration Management*, subsection 5.2A).
3. The audit team recommends that the CRWMS M&O determine the level of detail necessary to be documented in procedures to allow different individuals to perform quality affecting activities in a consistent manner, (e.g., should the database and logbooks used by the Software Configuration Secretary to track quality affecting activities including change requests be added to subsection 5.2B of QAP-SI-3).
4. The audit team recommends that the CRWMS M&O determine if Interim Guidance used to supplement procedural requirements should be incorporated into the affected procedures.

5. The audit team recommends that the CRWMS M&O implement the requirements of QARD, subsection 6.2.7, *Expedited Changes*, in lieu of using Interim Guidance to supplement approved controlled procedures.
6. The audit team reviewed the East/West Hydrology Predictive Report. The quality status of data used is presented in a manner that forces the reader to go to the individual basis reports that are cited in the report to ascertain their quality status. The audit team recommends that the data sets be put in table format with categories of data description, location in the report, QA status, TDIF, DTN, accession number and database location to facilitate the usability of the reports.

7.0 LIST OF ATTACHMENTS

Attachment 1: Personnel Contacted During the Audit

Attachment 2: Summary Table of Audit Results

ATTACHMENT 1

Personnel Contacted During the Audit
Las Vegas

<u>Name</u>	<u>Organization/Title</u>	<u>Pre-audit Meeting</u>	<u>Contacted During Audit</u>	<u>Post-audit Meeting</u>
Ambos, D.	M&O/Manager – Environmental Field Programs		X	
Adame, S.	M&O/Human Resources			X
Andrews, R.	M&O/Performance Assessment Operations Manager	X		X
Arth, F.	M&O/Surface Facility Section Supervisor		X	X
Bailey, J.	M&O/Director, Regulatory & Licensing		X	X
Barkin, S.	M&O/Standard Publications Supervisor	X		X
Belke, W.	NRC/On-Site Representative			X
Benton, H.	M&O/Waste Package manager	X		X
Bigger, N.	M&O/Technical Lead Geology		X	
Blaylock, J.	DOE/Engineer			X
Bodnar, S.	M&O/Technical Data Manager	X	X	
Burningham, A.	M&O/Thermal Testing & Engineering Support	X	X	
Calloway, D.	M&O/Manager - Records Reprocessing Center	X	X	
Carlisle, G.	M&O/Software Specialist		X	
Clark, J.	OQA/Senior QA Specialist	X		X
Clark, J. K.	M&O/Deputy Assistant General Manager	X	X	X
Clem, W.	M&O/Systems Engineer		X	
Croft, L.	M&O/Manager-Rad/Environmental Field Programs	X		X
Cruz, B.	M&O/System Engineering & Integration Sen. Staff	X		
Darling, D.	M&O/Framatome Cogema Fuels Liaison			X
Dixon, P.	M&O/Task Manager		X	
Donaldson, G.	M&O/Measuring & Test Equipment Custodian		X	
Dunn, T.	M&O/Manager-System Engineering & Integration		X	
Eldred, M.	M&O/Procurement		X	X
El-Madani, D.	M&O/Records Processing Center		X	
Eshleman, M.	OQA/Senior Quality Assurance Specialist		X	
Fogdall, S.	M&O/Manager, Program Information Management		X	X
Franks, M.	M&O/Engineering Assurance Specialist		X	
Grant, T.	M&O/Planning & Administration		X	
Greene, H.	OQA/Quality Assurance Verifications Manager	X	X	X
Griffith, G.	M&O/Manager Surface Facilities Operations	X		X
Gwyn, D.	M&O/Manager - Safety Assurance		X	
Harris, M.	M&O/Manager-Environ,Safety & Regional Programs	X		X
Hayes, L.	M&O/Manager - Natural Environment.Program Ops.	X	X	X
Henderson, R.	M&O/Manager - Procurement	X	X	X
Hodgson, N.	M&O/Task Manager NEPO			X
Howard, R.	M&O/Engineered Barrier System		X	X
Hoxie, D.	M&O/Process Modeling & PA Superintendent		X	
Hudson, W.	OQA/Program Manager	X		X

<u>Name</u>	<u>Organization/Title</u>	<u>Pre-audit Meeting</u>	<u>Contacted During Audit</u>	<u>Post-audit Meeting</u>
Humphries-Alder, C.	OQA/Senior Quality Assurance Specialist	X		
Hunt, W.	M&O/Engineering Assurance Engineer		X	
Jones, G.	M&O/Field Coordinator		X	
Justice, J.	M&O/Supervisor - Training Administrator Support	X	X	X
Keele, R.	M&O/License Application Interim Manager		X	X
Keller, D.	M&O/Receiving Department Manager	X		
Knapp, M.	M&O/Waste Package Operations	X		
Lentz, F.	OQA/Senior Quality Assurance Specialist	X	X	
Lewis, C.	M&O/Scientific Program Support Curator	X	X	
Lugo, M.	M&O/Manager -Systems Engineering & Integration			X
Mantor, L.	M&O/Document Control Lead		X	
McGoldrick, J.	M&O/Purchasing Manager	X		X
McGrath, L.	OQA/Senior Quality Assurance Specialist		X	X
McKenzi, D.	M&O/Repository Subsurface Design Manager	X		
Moore, S.	M&O/Supervisor - Document Productions & Control	X	X	
Morgan, R.	M&O/Manager - Engineering Assurance	X	X	X
Mueller, T.	M&O/Supervisor - Records Services	X	X	X
Nesbitt, J.	M&O/Finance and Business		X	
Nusbaum, M.	M&O/Document Control Coordinator		X	
Pendleton, M.	M&O/Repository Safety System Engineer			X
Porter, D.	M&O/Quality Assurance Support		X	
Rael, H.	M&O/Senior Petrophysicist		X	
Reeve, K.	M&O/Monitored Geologic Repository			X
Reynolds, T.	M&O/Task Manager NEPO			X
Rogers, T.	M&O/Repository Safety System Engineer			X
Sandifer, R.	M&O/Manager - Site Construction & Operations	X		
Savarise, B.	M&O/WPM Supervisor	X		
Schmit, J.	OQA/Senior Quality Assurance Specialist			X
Scotese, T.	M&O/NEPO Geoengineering		X	
Segrest, A.	M&O/Manager - Surface Facility Operations		X	X
Spence, D.	M&O/Technical Data Management	X		
Spencer, R.	M&O/Geotechnical Specialist		X	
Stafford, H.	M&O/Support Operations Manager	X		X
Stroupe, E.	M&O/Manager Systems Engineering	X	X	
Therien, J.	OQA/Manager - Quality Assurance Program	X		X
Thomas, B.	M&O/Subcontract Manager	X		X
Vawter, R.	M&O/Deputy Assistant General Manager	X	X	X
Voegele, M.	M&O/Deputy Director – Nevada Site Management			X
Vogt, T.	M&O/Thermal Testing Data Analysis		X	
Von Tiesenhausen, E.	Clark County/Engineering Specialist			X
Warren, C.	OQA/Quality Assurance Verification Manager	X	X	X
Wemheuer, R.	M&O/Supervisor –Determination of Importance Eval.		X	
Wilkins, D.	M&O/Acting General Manager		X	X
Williams, A.	DOE/OQA General Engineer	X		

<u>Name</u>	<u>Organization/Title</u>	<u>Pre-audit Meeting</u>	<u>Contacted During Audit</u>	<u>Post-audit Meeting</u>
Wolverton, K.	M&O/Staff Liaison	X	X	X
Yunker, J.	M&O/Manager - Performance Assessment Operations		X	X
Zeisloft, J.	M&O/Field Coordination Office		X	

ATTACHMENT 1

Personnel Contacted During the Audit **Vienna**

<u>Name</u>	<u>Organization/Title</u>	<u>Pre-audit Meeting</u>	<u>Contacted During Audit</u>	<u>Post-audit Meeting</u>
Clark, J.	M&O/Manager -Waste Acceptance & Transp.		X	
George, J.	OQA/Senior Quality Assurance Specialist	X	X	(X)
Gibson, S.	M&O/Supervisor - Records Processing Center	X	X	
Heath, C.	M&O/Assistant General Manager			(X)
Judge, P.	M&O/Records Specialist		X	
Justice, J.	M&O/Supervisor, Training	X	X	X
Lindseth, D.	M&O/Records management Assistant		X	
Meyer, L.	M&O/Systems Analysis & Integration			(X)
Meyer-Cain, K.	M&O/Director-Human Resources & Training	X		
Murthy, R.	DOE/Office of Quality Assurance	X		
Ogwuegbu, P.	M&O/Records Management Assistant		X	
Pranzatelli, J.	M&O/finance and Business	X	X	(X)
Ruffin, G.	M&O/RM & SS		X	
Shepherd, M.	M&O/Manager - Records	X	X	
Shupe, J.	M&O/Manager - Contracts and Subcontracts		X	
Stewart, S.	M&O/Document Control Center Lead		X	
Tayfun, A.	M&O/Manager-Records Mgmt.&Control Center	X	X	(X)
Vawter, R.	M&O/Deputy Assistant General Manager	X	X	X
Wagner, R.	M&O/Systems Engineering & Integration	X	X	
White, P.	M&O/Engineering Assurance Staff	X	X	(X)
Wood, G.	OQA/Senior Quality Assurance Analyst	X	X	(X)

(X) Attended Final Post-audit Meeting via Videoconference in Vienna, Virginia.

ATTACHMENT 2

Summary Table of Audit Results

	IMPLEMENTING DOCUMENTS	DETAILS (CHECKLIST)	DEFICIENCIES	RECOMMENDATIONS	PROGRAM ADEQUACY	PROCEDURE COMPLIANCE	OVERALL
1	QAP-1-0, Rev. 6	Pgs. 1-3 (L) Pgs. 1-3 (V)	CDA #1 CDA #1	N N	SAT SAT	SAT SAT	SAT
2	NLP-2-0, Rev. 5	Pgs.150-152 (L)	N	N	SAT	SAT	UNSAT
	QAP-2-0, Rev. 5	Pg. 5 (L) Pg. 4 (V)	N N	N N	SAT SAT	SAT SAT	
	QAP-2-1, Rev. 5	Pgs 12-14 (L) Pgs. 5-5a (V)	N VAMO-99-D-026	N N	SAT SAT	SAT UNSAT	
	QAP-2-2, Rev. 3	Pgs. 12-14 (L) Pgs. 6-7 (V)	LVMO-99-D-027 N	N N	SAT SAT	UNSAT SAT	
	QAP-2-3, Rev. 9	Pgs. 156-157 (L)	N	N	SAT	SAT	
	QAP-2-6, Rev. 4	Pg. 9 (L)	N	N	SAT	NI	
	QAP-3-3, Rev. 5	Pgs. 4-8 (L)	N	REC #1	SAT	SAT	
	QARD, Rev. 8 Section 2.2.1	Pg. 10 (L)	N	N	SAT	SAT	
	QARD, Rev. 8 Section 2.2.5	Pg. 11 (L)	*LVMO-98-D-027	N	UNSAT	UNSAT	
5	QAP-5-1, Rev. 6	Pgs.19-21 (L) Pg. 9-11 (V)	N N	N N	SAT SAT	SAT SAT	SAT
	NLP-5-1, Rev. 3	Pgs. 22-24 (L)	CDA #2	N	SAT	SAT	
6	AP-6.1Q, Rev. 0	Pgs. 25-29 (L) Pgs. 12-15 (V)	CDA #3 N	REC #3, #4 & #5 N	SAT SAT	SAT SAT	SAT
	NLP-6-3, Rev. 1	Pgs. 30-34 (L)	N	N	SAT	NI	
	VLP-6-1, Rev. 0	Pg. 16 (V)	N	N	SAT	SAT	
4/7	QAP-7-2, Rev. 1	Pgs. 15-18 (L) Pg. 17 (V)	*VAMO-98-C-005 N	N N	SAT SAT	UNSAT NI	UNSAT
	QAP-7-3, Rev. 1	Pgs. 35-36 (L) Pg. 17 (V)	*VAMO-98-C-005 N	N N	SAT SAT	UNSAT NI	
	QAP-7-4, Rev. 1	Pgs. 37-43 (L) Pg. 17 (V)	N N	N N	SAT SAT	SAT NI	
	QAP-7-5, Rev. 1	Pgs. 48-52 (L) Pg. 17 (V)	*VAMO-98-C-005 N	N N	SAT SAT	UNSAT NI	
	QAP-7-6, Rev. 1	Pgs. 44-47 (L) Pg. 17 (V)	*VAMO-98-C-005 N	N N	SAT SAT	UNSAT NI	

	IMPLEMENTING DOCUMENTS	DETAILS (CHECKLIST)	DEFICIENCIES	RECOMMENDATIONS	PROGRAM ADEQUACY	PROCEDURE COMPLIANCE	OVERALL
12	QAP 12-1, Rev. 6	Pgs. 53-64 (L)	CDA #2	N	SAT	SAT	SAT
	NWI-SMF-005Q, Rev. 2	Pg. 65 (L)	CDA #2	N	SAT	SAT	
	NWI-SMF-006Q, Rev. 2	Pg. 65 (L)	N	N	SAT	SAT	
	NWI-MET-001Q, Rev. 3	Pgs. 66-69 (L)	CDA #2	N	SAT	SAT	
	NWI-MET-009Q, Rev. 1	Pg. 70 (L)	N	N	SAT	SAT	
15	YAP-15.1Q, Rev. 4	Pgs. 71-73 (L)	N	N	SAT	SAT	SAT
16	AP-16.1Q, Rev. 3	Pgs. 74-76 (L) Pgs. 18-20 (V)	*VAMO-98-C-005	N N	SAT SAT	UNSAT UNSAT	UNSAT
	AP-16.2Q, Rev. 2	Pgs. 77-79 (L) Pg. 21 (V)	*VAMO-98-C-005	N N	SAT SAT	UNSAT UNSAT	
	AP-16.4Q, Rev. 0	Pg. 80 (L) Pg. 22 (V)	*VAMO-98-C-005 N	N N	SAT SAT	UNSAT UNSAT	
17	AP-17.1Q, Rev. 0	Pgs. 81-87 (L) Pgs. 23-29 (V)	N N	N N	SAT SAT	SAT SAT	SAT
	QAP-17-2, Rev. 4	Pgs.88-90 (L) Pgs. 30-32 (V)	N N	N N	SAT SAT	SAT SAT	
	VLP-17-9, Rev. 1	Pgs. 33-34 (V)	N	N	SAT	SAT	
SI	QAP-SI-0, Rev. 4	Pgs. 91-102 (L)	CDA #4	N	SAT	UNSAT	UNSAT
	QAP-SI-3, Rev. 3	Pgs. 35-37 (V)	*LVMO-98-C-006 LVMO-99-D-030	REC #2	UNSAT	UNSAT	
SII	NWI-SMF-001Q, Rev. 0	Pgs.107-111 (L)	N	N	SAT	SAT	SAT
	NWI-SMF-002Q, Rev. 1	Pgs.113-118 (L)	N	N	SAT	SAT	
	NWI-SMF-003Q, Rev. 1	Pg. 119 (L)	N	N	SAT	SAT	
	YAP-SII.4Q, Rev. 2	Pgs.125, 145(L)	CDA #5	N	SAT	SAT	
	QARD, Rev. 8 Section II.2.2	Pg. 103 (L)	N	N	SAT	SAT	
	QARD, Rev. 8 Section II.2.3	Pg. 103 (L)	N	N	SAT	SAT	
	QARD, Rev. 8 Section II.2.4	Pgs.104-105 (L)	N	N	SAT	SAT	
	QARD, Rev. 8 Section II.2.6	Pg. 106 (L)	N	N	SAT	SAT	

	IMPLEMENTING DOCUMENTS	DETAILS (CHECKLIST)	DEFICIENCIES	RECOMMENDATIONS	PROGRAM ADEQUACY	PROCEDURE COMPLIANCE	OVERALL
	QARD, Rev. 8 Section II.2.7	Pg. 106 (L)	N	N	SAT	SAT	SAT
	NWI-RM-908Q, Rev. 0	Pgs.120-121 (L)	N	N	SAT	NI	
	NWI-DS-004Q, Rev. 1	Pg. 124 (L)	N	N	SAT	SAT	
SIII	NWI-MET-002Q, Rev. 2	Pgs.158-160 (L)	N	N	SAT	SAT	UNSAT
	NWI-MET-003Q, Rev. 2	Pg. 181 (L)	N	N	SAT	SAT	
	NWI-MET-006Q, Rev. 2	Pg. 182 (L)	N	N	SAT	SAT	
	NWI-MET-010Q, Rev. 0	Pgs.161-164 (L)	N	N	SAT	NI	
	NWI-MET-011Q, Rev. 1	Pgs.159, 160(L)	N	N	SAT	SAT	
	NWI-ESD-031Q, Rev. 0	Pgs.160, 161(L)	N	N	SAT	SAT	
	NWI-SPO-001Q, Rev. 0	Pg. 163 (L)	N	N	SAT	NI	
	NWI-SPS-001Q, Rev. 0	Pg. 180 (L)	N	N	SAT	SAT	
	QAP-SIII-1, Rev. 3	Pgs.126-131 (L)	*LVMO-98-D-027	REC #6	UNSAT	UNSAT	
	QAP-SIII-2, Rev. 1	Pgs.138-142 (L)	N	N	SAT	SAT	
	QAP-SIII-3, Rev. 2	Pgs.132-137 (L)	CDA #6	N	SAT	SAT	
	YAP-SIII.1Q, Rev.3	Pg.146-149 (L)	N	N	SAT	SAT	
	YAP-SIII.3Q, Rev.2	Pgs.143-145 (L)	*LVMO-99-C-001	N	UNSAT	UNSAT	
	NLP-SIII.2, Rev.1	Pgs. 153-155 (L)	N	N	NI	NI	
	NWI-MET-012Q, Rev. 0	Pg. 165 (L)	N	N	SAT	NI	
	NWI-RM-910Q, Rev. 0	Pgs. 166-172 (L)	N	N	SAT	SAT	
	NWI-RM-911, Rev. 0	Pg. 173 (L)	N	N	SAT	NI	
	YAP-SIII.4Q, Rev. 1	Pgs. 174-177 (L)	N	N	SAT	SAT	
	YAP-SIII.5Q	Pg. 178 (L)	N	N	SAT	SAT	
	YAP-SIII.6Q	Pg. 179 (L)	N	N	SAT	NI	
	NWI-GL-003Q	Pg. 183 (L)	N	N	SAT	NI	

	IMPLEMENTING DOCUMENTS	DETAILS (CHECKLIST)	DEFICIENCIES	RECOMMENDATIONS	PROGRAM ADEQUACY	PROCEDURE COMPLIANCE	OVERALL
	NWI-GL-002Q	Pg. 184 (L)	N	N	SAT	SAT	
	NWI-GL-001Q	Pg. 185 (L)	N	N	SAT	SAT	
SV	QARD, Rev. 8	Pg. 186 (L) Pg. 38 (V)	*LVMO-98-D-055 *VAMO-98-D-132	N N	UNSAT UNSAT	UNSAT UNSAT	UNSAT
APP. C	QARD, Rev. 8	Pgs. 35-52 (L) Pgs. 71-73 (L)	N N	N N	SAT SAT	NI SAT	SAT
TOTAL		186 Pgs. (L) 38 Pgs. (V)	3 NEW DRs *3 CARS *3 DRs 6 CDAs	6 RECS	SATISFACTORY		

LEGEND:

(C) Charlotte Checklist
CAR.....Corrective Action Request
CDA.....Corrected During the Audit
DR.....Deficiency Report
(L).....Las Vegas Checklist
N.....None
NI.....Not Implemented
OVERALL.....Summary of Element
REC.....Recommendation
SAT.....Satisfactory
UNSAT.....Unsatisfactory
(V).....Vienna Checklist

***PREVIOUSLY ISSUED OCRWM DEFICIENCY DOCUMENT**